Historic, archived document

Do not assume content reflects current
scientific knowledge, policies, or practices.

#63

MOISTURE CHARACTERISTICS

of Some Representative Soils

of Florida

U. S. Dept. of Agriculture
National Agricultural Library
Beltsville Branch
Plant Industry Station
Beltsville, Maryland

LIBRARY
RECEIVED
APR 25 1963
U. S. DEPARTMENT OF AGRICULTURE
BELTSVILLE BRANCH

April 1963 ARS 41-63
Agricultural Research Service

UNITED STATES DEPARTMENT OF AGRICULTURE

CONTENTS

	Page
Introduction	1
Soils studied	1
Sampling procedure	2
Experimental measurements	2
Soil Hydraulic conductivity	2
Bulk density	2
Total pores	2
Soil moisture retention	2
Available soil moisture	3
Using soil moisture data	3
Soil sample sites (map)	4
Soils characterized	5
Soil moisture characteristics (tables)	6

MOISTURE CHARACTERISTICS OF SOME REPRESENTATIVE SOILS OF FLORIDA[1]

Ernest H. Stewart, David P. Powell, and Luther C. Hammond[2]

INTRODUCTION

Efficient utilization and management of soil water for agricultural production requires basic information concerning the relationships between soil physical characteristics and soil moisture. Also, effective flood control and subirrigation require knowledge of the storage capacity and internal drainage characteristics of soils. In Florida there is at present inadequate soil moisture information available to meet these requirements. The objective of this report is to bring together available data on physical and moisture retention properties of Florida soils as an aid in planning effective soil-water management.

A large percentage of Florida soils are sandy textured, and have very low water-holding (retention) capacity. These sandy soils may have high water tables or relatively impervious layers that cause poor drainage and poor aeration after heavy rains. Information on the properties of these soils will be beneficial in designing drainage, irrigation, or flood control systems. Complete data are at present lacking for some of the soil types included in this report.

SOILS STUDIED

The soils described here are representative of many of the well-established soil types of the State. They are grouped alphabetically in table 1 under their respective great soil groups. The approximate locations of the soil sampling sites are shown in figure 1. The Red-Yellow Podzolic soils are found in the rolling uplands in west Florida and portions of the uplands in the peninsula. These soils characteristically have sandy loam and sandy clay subsoils and are well drained.

The Regosols are the azonal group of soils representing the greater part of the high sand ridges in peninsular and north-central Florida. These soils are mostly deep sands that are well drained to somewhat excessively drained.

The intrazonal soils are represented by the Ground-Water Podzol, Low-Humic Gley, and Humic Gley soils. These three great soil groups are listed here in order of the decreasing degree of drainage and the increasing amount of organic matter in the surface horizon. All the soils representing the Ground-Water Podzols have underlying organic-stained pans. These soils occupy extensive areas in the peninsula and in coastal west Florida.

Organic soils are divided into two major classes, namely mucks and peats. Muck is peat in a more advanced stage of decomposition. These soils have relatively high moisture-holding capacities and capillary action.

---

[1] Joint contribution of the Agricultural Research Service and Soil Conservation Service, U.S. Department of Agriculture; the Florida Agricultural Experiment Station; and the Central and Southern Florida Flood Control District.

[2] Authors are, respectively, Soil Scientist, Soil and Water Conservation Research Division, Agricultural Research Service, USDA, Fort Lauderdale, Fla.; Soil Specialist for Survey Interpretation, Soil Conservation Service, USDA, Gainesville, Fla.; and Associate Soil Physicist, Florida Agricultural Experiment Station, Gainesville.

SAMPLING PROCEDURE

The majority of soils were selected and sampled by personnel of the Soil Conservation Service, U. S. Department of Agriculture. A few were sampled by personnel of the Florida Agricultural Experiment Station and of the Agricultural Research Service, U. S. Department of Agriculture. Quadruplicate samples were taken at appropriate depths (usually midway) in each horizon with the Uhland-type soil sampler. This sampler, equipped with 3- by 3-inch aluminum cylinders, provided soil cores of substantially undisturbed structure for the hydraulic conductivity and moisture tension determinations. Discretion was used to avoid sites or samples that were unrepresentative. The samples were taken several feet apart in the field and were found in most cases to be reasonably consistent in their physical properties. Where there were data available from several sites of a soil series, those from the site having physical characteristics nearest the median of the group were used.

EXPERIMENTAL MEASUREMENTS

Soil Hydraulic Conductivity

The undisturbed 3-inch soil cores were saturated with water under a partial vacuum, while still in the aluminum cylinders. Water was then percolated through the soil with a constant head of 1 inch above the surface. After the percolation rate had become constant, the rate of flow per unit of time was determined and expressed as inches per hour. These percolation data were converted to standard hydraulic conductivity data, that is, for unit hydraulic gradient, by multiplying by a factor of 0.75. The hydraulic conductivities of a number of the loose, single-grain sands are very high. Generally, soils with high hydraulic conductivities are not associated with poor drainage. The drainage problem in this instance was caused by low elevation, high water table, and/or relatively impervious substratum.

Bulk Density

The soil core of known field volume was ovendried and weighed. This weight in grams divided by the volume (cc.) of the field sample gives the bulk density of the sample at field-moisture content expressed as grams per cubic centimeter.

Total Pores

Total porosity expressed as percent of total volume was calculated by dividing the difference in weight (gm.) of the saturated and ovendried soil core by the volume (cc.) of the core. The data obtained were compared for agreement with data calculated by means of bulk density and average particle density according to the following formula:

$$\text{Percent total pore space} = \left(1 - \frac{\text{Bulk density}}{\text{Particle density}}\right) 100.$$

Soil Moisture Retention

Soil moisture retention data reported herein are from desorption or increasing moisture tension procedures. Data on soil moisture retention at saturation and at a tension of 60 cm. of water were obtained from undisturbed soil cores soon after they were brought from the field. Soil Conservation Service soil samples were stored for several years. (The samples are identifiable by "SCS" with the "Area" designations in the tabular material concerning Soil Profile and Moisture Characteristics.) These SCS samples were then sieved and subsampled for moisture retention analysis at 0.10-, 0.50-, and 15-atmosphere tensions. The 0.10- and 15-atmosphere tension data were obtained by equilibrating subsamples in pressure-plate and pressure-membrane

apparatus, respectively. Moisture retention data at 0.50-atmosphere tension were obtained on the disturbed subsamples by the standard moisture-equivalent centrifuge procedure. The higher moisture retention data, which are representative of these disturbed samples, are missing in a number of instances in which the original samples were removed from storage and destroyed before the work was done. The data obtained from the subsamples are indicated in the tabular material by a "[2]" referring to the second footnote of the tabulations.

Moisture retention data at low tension (10-100 cm. suction) from Agricultural Research Service samples (identifiable by "ARS" with the "Area" designations) were obtained by placing undisturbed soil cores on a sand-silt column.[3] Moisture retention data at high tension were obtained by placing undisturbed soil cores on pressure membrane apparatus.

Storage of the SCS soil samples may have altered the soil moisture-holding properties to some extent. It is characteristic of the very sandy soils that a small change in organic-matter content will affect the moisture retention relationships at the higher tensions. No doubt there was some reduction in organic matter while the soils were in storage. Organic-matter reduction would tend to give lower moisture values for determinations made after storage than for those obtained soon after samples were taken from the field. Soils with substantial amounts of cohesive material probably were adversely affected by the storage, drying, and preparation of the subsamples.[4] Moisture values obtained at the higher tensions on sandy soils very low in organic matter probably were not substantially affected.

Available Soil Moisture

Soil moisture content at a tension of 15 atmospheres is generally accepted as being an index of the lower limit of the available-moisture range; this standard was used for determining the available water in the various soil profiles. The upper limit of available moisture range under field-drained conditions is difficult to set. In this study the upper limit of available moisture content for sandy-textured soils has been arbitrarily set as the amount of water that can be retained at 0.10-atmosphere tension, and the upper limit for finer textured soils set as the amount that can be retained at 0.50-atmosphere tension (moisture equivalent). For most medium- to fine-textured soils, the upper limit of available moisture is approximately twice the moisture percentage of the lower limit. The procedure of doubling the lower limit moisture percentage to indicate the upper limit of available soil moisture may be used in lieu of 0.50-atmosphere data for medium- to fine-textured soils. Since the moisture-equivalent method is subject to possible serious error, many laboratories have discontinued its use. The available soil moisture content of the horizons within a soil was estimated by obtaining the difference between the upper and lower soil-moisture-storage limits. Adjustments in these figures should be made by the user when additional information or his experience shows a need.

USING SOIL MOISTURE DATA

Uses of moisture-retention and other physical data are mentioned as a preliminary guide in planning soil-water management. Differences in total pore space and pore space filled with water at various tensions are useful in estimating potential water storage capacities of soils. Such data are also useful in determining amounts of water to be removed

3 Jamison, V. C. Sand-silt suction column for determination of moisture retention. Soil Sci. Soc. Amer. Proc. 22:82-83. 1958.

4 Baver, L. D. Soil physics. Ed 3, 489 pp. [1956.] (See Ch. 4.)

from the soil to meet various drainage requirements, and water yields for planning watershed management. Hydraulic conductivity data used in appropriate Darcy-type formulas aid in determining water discharge rates into drainage ways.

The difference in moisture content of the soil between the content at the approximate-field-capacity point and the 15-atmosphere point approximates the amount of soil moisture available to plants. Water retention and water content data are expressed as volume percent and inches of water per inch of soil, respectively, so that they are readily applicable to profile horizons of various thicknesses.

Soil textural classification and bulk density data are useful in relating and estimating moisture properties of soils for which incomplete data are available. Soils with similar textures and bulk densities are likely to have similar moisture properties, particularly those soils within the same great soil group. Information on available soil moisture and daily evapotranspiration is useful in determining irrigation requirements.

Figure 1.--Sample sites of the soils in this report.

Table 1. SOIL TYPES CHARACTERIZED IN THIS REPORT

	Sample No.
Red-Yellow Podzolic (Zonal):	
Archer fine sand	1
Boswell fine sandy loam	2
Esto fine sandy loam	3
Faceville fine sandy loam	4
Goldsboro fine sandy loam	5
Greenville loamy fine sand	6
Hernando fine sand	7
Magnolia fine sandy loam	8
Magnolia loamy fine sand	9
Norfolk loamy fine sand	10
Rex fine sand	11
Ruston loamy fine sand	12
Sawyer fine sandy loam	13
Ground-Water Podzol (Intrazonal):	
Immokalee fine sand	14, 15
Leon fine sand	16, 17
Ona fine sand	18
Pomello sand	19
St. Johns fine sand	20
Low-Humic Gley (Intrazonal):	
Adamsville fine sand	21, 22
Bladen fine sandy loam	23
Charlotte fine sand, shallow	24
Coxville fine sandy loam	25
Dunbar fine sandy loam, dark-colored surface	26
Felda fine sand	27
Fellowship loamy fine sand	28
Keri fine sand	29
Plummer fine sand	30, 31
Ruskin fine sand	32
Humic Gley (Intrazonal):	
Bayboro loamy fine sand	33
Bayboro mucky fine sand, thick surface	34
Manatee fine sandy loam	35
Rutlege fine sand	36
Scranton fine sand, shallow	37
Regosol (Azonal):	
Arredondo fine sand	38
Blanton fine sand	39
Chiefland fine sand	40
Eustis sand	41
Fort Meade fine sand	42
Gainesville fine sand	43
Lakeland sand	44
Lakewood fine sand	45
Orlando fine sand	46
St. Lucie sand	47
Organic Soil:	
Everglades peaty muck	48

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 1 [1]

SOIL TYPE: Archer fine sand
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Layers of sand over sandy clay loams derived in part from limestone
AREA: Alachua County, Florida (SCS-12)
RELIEF: Gently undulating
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-12	Gray (10YR 5/1) fine sand; weak, fine, crumb structure; nearly loose when moist; numerous grass roots and root channels.	0.125	0.063	0.031	0.094
A_2	12-17	Light yellowish-brown (10YR 6/4) loamy fine sand mottled with yellowish brown (10YR 5/4) and very pale brown (10YR 7/4); weak, fine, crumb structure; very friable; numerous small root channels.	-	-	-	-
B_1	17-21	Reddish-yellow (7.5YR 6/6) fine sandy clay loam; moderate, fine, subangular blocky structure; moderately plastic when wet, slightly compact when moist.	-	-	.158	-
B_{21}	21-28	Yellowish-red (5YR 5/6) fine sandy clay loam faintly mottled with yellowish red (5YR 7/6); moderate, fine, subangular blocky structure; slightly plastic and sticky when wet, moderately compact when moist.	-	-	.204	-
B_{22}	28-36+	Distinctly mottled weak red (10YR 4/4), white (10YR 8/2), and reddish yellow (5YR 6/6) fine sandy clay; moderate, medium, angular blocky structure; slightly plastic when wet, very compact when moist.	-	-	.190	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
Ap	1-4	1.50	5.16	43.5	34.4	12.5	6.3	3.1
A_2	13-16	1.51	8.06	45.2	30.4	-	-	-
B_1	18-21	1.59	.98	40.6	33.1	-	-	15.8
B_{21}	24-27	1.57	.54	41.8	35.8	-	-	20.4
B_{22}	48-51	1.75	.32	35.7	31.5	-	-	19.0

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 2 [1]

SOIL TYPE: Boswell fine sandy loam
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Stratified acid marine sandy loams and clays

AREA: Walton County, Florida (SCS-102)
RELIEF: Gently sloping hillside
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-6	Dark-gray (10YR 4/1) fine sandy loam; medium crumb structure; slightly compact; numerous small grass roots; moderately few small, medium, and large pores.	-	-	-	-
B_2	6-15	Mottled yellowish-red (5YR 5/8), red (2.5YR 4/8), and yellow (2.5Y 7/8) clay; strong, fine, blocky to platy structure in which the horizontal axes are greater than the vertical axes; aggregates have smooth faces and overlap each other about 50%; high degree of shrinkage on drying; numerous medium pores along interfaces.	0.40	0.30	0.18	0.12
C	15-30+	Strongly mottled, light-gray (N 7/0), yellowish-brown (10YR 5/4), and red (2.5YR 4/8) fine sandy clay; strong, medium, blocky structure; horizontal axes greater than vertical axes, about 50% overlap; some fine roots following interfaces; few pores.	-	-	.21	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_1	0-3	1.43	2.0	48.0	31.1	-	-	-
B_2	9-12	1.21	4.9	67.1	59.0	39.9	29.6	18.4
C	24-27	1.52	.4	46.8	37.9	-	-	20.9

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 3 1/

SOIL TYPE: Esto fine sandy loam
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Acid marine sandy clays and clay loams

AREA: Jackson County, Florida (SCS-94)
RELIEF: Gently sloping knoll
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-9	Dark-gray (10YR 4/1) fine sandy loam; moderate crumb structure; slightly compact; numerous small roots, root holes, and earthworm burrows.	0.163	-	0.54	0.109
B	9-21	Light-brown (7.5YR 6/4), faintly mottled fine sandy clay; strong, subangular blocky structure; considerable loose material with crumb structure between aggregates; horizontal and vertical axes about even; very sticky when wet, cracking considerably on drying; horizon variable in porosity and consistence.	-	-	.227	-
C	21-24+	Strongly mottled, light-red (2.5YR 6/6), brownish-yellow (10YR 6/6), and light-gray (N 7/0) clay; strong, angular blocky structure; horizontal axes much greater than vertical, 25% to 50% overlap of aggregates; few small and medium pores; very sticky when wet, and high degree of shrinkage on drying.	-	-	.266	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. 2/	Vol.pct.	Vol.pct. 2/
A_1	0-3	1.47	4.5	41.4	28.2	16.3	-	5.4
B	10-13	1.41	3.3	45.9	38.5	-	-	22.7
C	21-24	1.54	5.0	42.6	35.9	-	-	26.6

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 4 [1]

SOIL TYPE: Faceville fine sandy loam
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Acid marine sandy clay loams

AREA: Gadsden County, Florida (SCS-78)
RELIEF: Gently sloping ridge
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-6	Dark grayish-brown (10YR 4/2) fine sandy loam; some streaks of lighter colored, water-sorted fine sand and some decaying plant fragments; moderate, medium, crumb structure; numerous small and few medium pores.	0.147	0.099	0.050	0.049
B_1	6-12	Strong-brown (7.5YR 5/8) fine sandy clay loam; weak, medium, subangular blocky structure breaking with slight pressure to crumby aggregates; moderately sticky when wet, friable when moist, hard when dry; numerous small and medium pores.	.292	.228	.131	.097
B_{21}	12-24	Red (2.5YR 4/8) moderately compact fine sandy clay; moderate, medium, subangular blocky structure; horizontal and vertical axes about equal; crumbles with slight pressure to crumb aggregates; numerous medium and fine pores and earthworm burrows.	-	-	-	-
B_{22}	24-36+	Red (2.5YR 4/6), faintly mottled, fine sandy clay; moderately strong, subangular blocky structure; horizontal and vertical axes about equal, less than 25% overlap; sticky when wet, friable when moist, hard when dry; small and medium pores though not as numerous as in layer above.	-	-	.183	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
Ap	3-6	1.45	5.5	43.8	25.1	14.7	9.9	5.0
B1	6-9	1.55	3.1	41.8	30.6	29.2	22.8	13.1
B21	18-21	1.55	1.5	41.4	33.7	-	-	
B22	24-27	1.59	.8	41.0	34.5	-	-	18.3

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 5 1/

SOIL TYPE: Goldsboro fine sandy loam
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Marine sandy loams and clay loams

AREA: Escambia County, Florida (SCS-109)
RELIEF: Gently sloping hillside
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-7	Grayish-brown (10YR 5/2) fine sandy loam; moderate organic-matter content; numerous small iron pebbles; not sampled.	-	-	-	-
B_1	7-15	Yellowish-brown (10YR 5/8) fine sandy loam; weak, subangular blocky structure that breaks with slight pressure to crumb aggregates; friable; numerous grass roots and small and medium pores.	-	-	0.106	-
B_2	15-24	Brownish-yellow (10YR 6/6) fine sandy clay loam; subangular blocky structure; firm; few grass roots and moderately numerous medium and small pores.	-	-	.138	-
B_3	24-42+	Highly mottled, light-gray (N 7/0), pale-yellow (2.5Y 8/4), yellow (2.5Y 7/8), and red (2.5YR 4/8) fine sandy clay loam; strong, medium, blocky structure; horizontal axis greater than vertical, overlap is about 50%; few large pores, moderately few medium pores, and numerous small pores.	-	-	.200	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct. 2/
A_1	-	-	-	-	-	-	-	-
B_1	10-13	1.45	8.2	47.4	31.7	-	-	10.6
B_2	18-21	1.58	6.5	44.4	33.1	-	-	13.8
B_3	39-42	1.54	.7	46.6	35.0	-	-	20.0

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 6 1/

SOIL TYPE: Greenville loamy fine sand
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Acid marine sandy loams and clay loams

AREA: Okaloosa County, Florida (SCS-110)
RELIEF: Nearly level ridge
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-7	Dark reddish gray loamy fine sand with medium organic content. Not sampled.	-	-	-	-
B_1	7-18	Red (10R 4/6) fine sandy loam with moderate crumb structure and showing some weak subangular blocky aggregates. Contains numerous small roots and is permeated with numerous small and medium pores. Considerable small earthworm activity.	0.238	-	0.099	-
B_{21}	18-38	Red (10R 4/8) fine sandy clay with moderate subangular blocky structure. Larger aggregates break easily into moderate crumb aggregates. Contains many small roots and has moderate number of small and medium pores. Appears to grow gradually less porous and more compact with depth below 30 inches.	-	-	.145	-
B_{22}	38-60+	Red (10R 4/8) fine sandy clay with weak blocky structure. These aggregates are quite friable and break with little pressure into moderate crumb aggregates. Few roots are present; considerably fewer visible pores than in upper part of "B" horizon.	-	-	.164	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. 2/	Vol.pct.	Vol.pct. 2/
Ap	-	-	-	-	-	-	-	-
B_1	10-13	1.46	14.8	46.1	24.9	23.8	-	9.9
B_{21}	24-27	1.43	7.1	45.4	24.4	-	-	14.5
B_{22}	50-53	1.53	1.6	41.6	26.4	-	-	16.4

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 7 [1]

SOIL TYPE: Hernando fine sand
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Thin layers of marine sand over clay and limestone

AREA: Levy County, Florida (SCS-10)
RELIEF: Gently undulating
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-8	Dark-gray (10YR 4/1) fine sand with moderate organic-matter content; weak, fine, crumb structure; very friable; contains numerous small root channels and earthworm burrows.	0.119	0.078	0.046	0.073
A_2	8-14	Grayish-brown (10YR 5/2) fine sand; similar to the "Ap" horizon except in color.	-	-	.151	-
B_2	14-20	Dark grayish-brown (10YR 4/2) fine sandy clay faintly mottled with lighter mottlings; moderate, medium, angular blocky structure; cleavage faces glazed with colloidal material; plastic; numerous small earthworm burrows; high moisture-expansion index.	.362	.334	.235	.099
C	20-40	Mottled, yellowish-brown (10YR 5/4) clay loam; strong, fine, angular blocky structure; cleavage faces glazed with colloidal material and fitting tightly together in moist condition; very plastic when wet, firm when moist; very few pores; high moisture-expansion index.	-	.420	.311	.109

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
Ap	1-4	1.53	16.4	42.6	17.1	11.9	7.8	4.6
A2	8-11	1.52	13.5	42.8	17.8	-	-	15.1
B2	14-17	1.39	2.4	46.9	40.4	36.2	33.4	23.5
C	24-27	1.22	.01	54.3	46.5	-	42.0	31.1

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 8 1/

SOIL TYPE: Magnolia fine sandy loam
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Acid marine loamy sands and sandy clays

AREA: Gadsden County, Florida (SCS-76)
RELIEF: Gently sloping ridge
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-9	Dark reddish-brown (5YR 3/2) fine sandy loam; weak, medium, crumb structure; moderately compact; contains some partly decomposed weeds and crop residue; a few large and medium pores; layer has been thoroughly disturbed by frequent plowing.	0.167	-	0.041	-
B_1	9-12	Red (2.5YR 4/6) fine sandy clay loam; weak, medium, subangular blocky structure grading to moderate, medium, crumb structure; moderately permeated by medium pores and scattered large root or worm holes; many small pores; sticky when wet, friable when moist, hard when dry; considerable compacting due to farm machinery.	.174	-	.051	-
B_2	12-36	Red (10R 4/8) clay loam; weak, medium, subangular blocky structure grading to moderate, medium, crumb structure; contains numerous small and medium pores but few large pores; no definite direction of fracture; very sticky when wet, friable when moist, hard when dry.	-	-	.151	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. 2/	Vol.pct.	Vol.pct. 2/
A_p	3-6	1.56	1.6	39.6	27.5	16.7	-	4.1
B_1	9-12	1.67	3.1	35.2	23.1	17.4	-	5.1
B_2	24-27	1.54	.4	39.3	30.1	-	-	15.1

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 9 1/

SOIL TYPE: Magnolia loamy fine sand
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Acid marine loamy sands and sandy clay loams

AREA: Gadsden County, Florida (SCS-105)
RELIEF: Gently sloping hillside
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-9	Dark reddish-gray (5YR 4/2) loamy fine sand; moderate crumb structure; moderately compact; contains considerable amount of undecomposed organic matter and numerous small feeder roots; numerous small pores and moderate number of medium pores.	-	-	-	-
B_1	9-22	Yellowish-red (5YR 5/8) fine sandy loam grading to red (2.5YR 4/6) fine sandy clay loam at about 15 inches below surface; moderate, well-developed, crumb structure with evidence of weak, subangular blocky aggregates; numerous medium pores and a few large pores; considerable porocity due to earthworms, grubs, and ants; numerous small and medium roots.	-	-	-	-
B_2	22-48+	Red (10R 4/8) fine sandy clay; strongly developed, subangular blocky structure; moderately compact; numerous small and medium pores and scattered large pores; freely penetrated by numerous small and medium roots.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
Ap	1-4	1.47	3.3	44.4	29.3	-	-	-
B_1	15-18	1.51	8.0	42.9	26.4	-	-	-
B_2	24-27	1.54	1.6	41.2	30.5	-	-	-

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 10 [1]

SOIL TYPE: Norfolk loamy fine sand
CLASSIFICATION: Red-Yellow Podzol
PARENT MATERIAL: Acid marine loamy sands and sandy clay materials

AREA: Gadsden County, Florida (SCS-75)
RELIEF: Gently sloping ridge
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-6	Grayish-brown (10YR 5/2) loamy fine sand; weak, crumb structure; moderately compact; moderately permeated with medium pores and scattered earthworm burrows.	0.089	0.060	0.029	0.060
A_2	6-12	Dark grayish-brown (10YR 4/2) fine sandy loam; moderate, fine, crumb structure; breaks first to weak, angular blocks with greatest ease of breakage along horizontal plane; compact; few large and medium pores but numerous small pores; evidence of compaction by farm equipment.	.119	-	.029	-
B_1	12-24	Brownish-yellow (10YR 6/6) fine sandy clay loam; moderate, medium, crumb structure and slight evidence of weak, subangular blocky structure; fractures along rounded, irregular faces; friable when moist, hard when dry; numerous small pores with a few medium and large pores.	.202	.173	.088	.085
B_2	24-36	Brownish-yellow (10YR 6/8) fine sandy clay; weak, medium, subangular blocky structure that crumbles readily to more stable crumb aggregates; very sticky when wet, friable when moist, very hard when dry; numerous medium and small pores, few large pores.	-	-	.137	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_p	2-5	1.51	4.0	42.4	24.0	8.9	6.0	2.9
A_2	6-9	1.71	1.2	33.8	26.3	11.9	-	2.9
B_1	15-18	1.60	6.5	37.8	25.1	20.2	17.3	8.8
B_2	24-27	1.56	5.8	40.2	30.8	-	-	13.7

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 11 [1]

SOIL TYPE: Rex fine sand
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Acid marine loamy sands over sandy clays

AREA: Alachua County, Florida (SCS-5)
RELIEF: Gently sloping hillside
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-8	Gray (10YR 6/1) fine sand containing moderate amount of organic material; streaks of water-sorted sand roughly admixed with remaining original surface; numerous decaying roots and stems of plowed-under weeds.	0.120	-	0.057	0.063
A_2	8-16	Pale-yellow (2.5Y 7/4) fine sand with very little organic material; single grain, structureless; slightly compact; relatively few small pores and small root channels.	.120	-	.032	.088
B_1	16-30	Yellow (2.5Y 7/6) fine sandy loam faintly mottled with reddish yellow; weak crumb structure that shows some evidence of weak, medium, subangular blocky structure; moderately plastic when wet, moderately compact and firm when moist.	-	-	-	-
B_{2g}	30-38	Highly mottled, pale-yellow (2.5Y 7/4), yellow (10YR 7/6), and light gray (10YR 7/1) fine sandy clay; moderate, medium, subangular blocky structure; strongly plastic when wet, compact and firm when moist; few pores.	.262	-	.092	-
B_{3g}	38-48+	Highly mottled fine sandy clay; strong coarse, blocky structure extending well over 72"; layer not sampled but appears less permeable than "B_2" horizon.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
Ap	1-4	1.50	2.2	42.8	31.1	12.0	-	5.7
A_2	12-15	1.60	4.6	38.9	30.1	12.0	-	3.2
B_1	20-23	1.64	2.6	38.7	33.0	-	-	-
B_{2g}	33-36	1.69	.4	-	35.1	26.2	-	9.2

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 12 [1]

SOIL TYPE: Ruston loamy fine sand
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Acid marine loamy sands and sandy clays

AREA: Gadsden County, Florida (SCS-79)
RELIEF: Gently sloping ridge
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-12	Very dark gray (5YR 3/1) loamy fine sand; weak crumb structure; slightly compact; moderate to low organic-matter content with fragments of decaying roots and stems of small annual plants; moderate number of large and medium pores, numerous small pores.	0.130	-	0.036	0.094
B_1	12-30	Brown (7.5YR 5/4) grading to strong-brown (7.5YR 5/6) fine sandy loam; moderate, medium, crumb structure; clods tend to break first into sub-angular blocks with equal ease of fracture horizontally and vertically; friable; numerous medium pores and a few root and worm holes.	.093	0.068	.026	.067
B_2	30-42+	Red (2.5YR 4/6) fine sandy clay loam; moderate, medium, subangular blocky structure; breaks with slight pressure to strong, medium, crumb aggregates; sticky when wet, friable when moist; numerous medium and large pores and numerous small and medium earthworm burrows.	.199	.161	.092	.069

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
Ap	3-6	1.46	9.0	44.1	21.7	13.0	-	3.6
B_1	15-18	1.51	19.9	42.2	16.4	9.3	6.8	2.6
B_2	33-36	1.56	9.4	41.6	25.2	19.9	16.1	9.2

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 13 [1]

SOIL TYPE: Sawyer fine sandy loam
CLASSIFICATION: Red-Yellow Podzolic
PARENT MATERIAL: Stratified marine loamy sands and clays

AREA: Walton County, Florida (SCS-100)
RELIEF: Gently sloping hillside
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-4	Grayish-brown (10YR 5/2) fine sandy loam; moderate crumb structure; moderate number of small pores, few medium and large pores; numerous small grass roots and some small earthworm burrows.	0.166	-	0.052	0.114
B_2	4-15	Brownish-yellow (10YR6/8), faintly mottled fine sandy clay; moderate, medium, blocky structure; aggregates have rough faces; horizontal and vertical axes about equal; plastic and sticky when wet, friable when moist; moderate number of fine pores, few medium and large pores.	-	-	-	-
B_3	15-24	Distinctly mottled, yellow (10YR 8/6) to red (2.5YR 5/8) clay; strong, medium,blocky structure; aggregates have smooth faces; horizontal axis slightly greater than vertical with about 50% overlapping of aggregates; plastic when wet, high shrinkage on drying; few pores and very few roots.	-	-	-	-
C	24-30+	Prominently mottled, white (N 8/0), red (2.5YR 5/8), and yellow (10YR 8/6) clay; strong, blocky structure; horizontal axis is much greater than the vertical axis; aggregates overlap about 50% and have smooth faces; very sticky; very few pores.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A_p	0-3	1.51	1.0	42.0	27.1	16.6	-	5.2
B_2	9-12	1.50	.9	41.8	34.4	-	-	-
B_3	18-21	1.50	.3	42.9	37.8	-	-	-
C	26-29	1.30	.04	51.3	48.1	-	-	-

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 14 [1]

SOIL TYPE: Immokalee fine sand
CLASSIFICATION: Ground-Water Podzol
PARENT MATERIAL: Acid marine sands

AREA: De Soto County, Florida (SCS-63)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-12	Dark gray (N 4/0) fine sand with considerable organic matter; numerous small root and worm holes.	-	-	-	-
A_2	12-36	White (10YR 8/1) fine sand; loose; few root and worm holes.	-	-	0.030	-
B_h	36-60	Color varies with depth from very dark brown (10YR 2/2) to brown (10YR 5/3); organic stained fine sand; very compact; interstitial spaces somewhat filled with fine organic matter and very fine sand; moderate number of small root holes, partially filled with peaty material, penetrate through this horizon; organic-matter content quite variable locally.	-	-	-	-
C	60-63	White fine sand; loose; lies almost permanently below the water table; not sampled.	-	-	-	-
D	63-72+	Mottled dark grayish-brown (10YR 4/2) and yellowish-brown (10YR 5/6) fine sandy loam to fine sandy clay loam containing some brown organic stain; very compact; considerable local variation in texture and pore distribution; occasional small and medium root holes partially filled with peaty material.	0.083	-	.054	.029

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A_1	6-9	1.44	16.2	44.0	16.5	-	-	-
A_2	18-21	1.53	18.6	42.6	19.0	-	-	3.0
B_h	36-39	1.65	2.2	37.7	27.9	-	-	-
D	63-66	1.62	1.3	39.6	32.9	8.3	-	5.4

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 15 1/

SOIL TYPE: Immokalee fine sand
CLASSIFICATION: Ground-Water Podzol
PARENT MATERIAL: Acid marine sands

AREA: Okeechobee County, Florida (ARS-4)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-4	Very dark gray (N 3/0) fine sand; loose; moderate organic content; strongly acid (pH 5); clear boundary.	0.153	-	0.066	0.087
A_{21}	4-15	Gray (10YR 5/1) to light gray (10YR 7/1) fine sand with very few streaks of pale brown to brown; loose; strongly acid (pH 5); diffuse boundary.	.106	-	.023	.083
A_{22}	15-31	Light gray (10YR 7/1) fine sand with few streaks of pale brown and brown; loose; strongly acid (pH 5); abrupt boundary.	.114	-	.022	.092
B_{2h}	31-36+	Black (10YR 2/1) fine sand stained with organic-matter accumulation; friable; strongly acid (pH 5); gradual boundary; not sampled.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_1	0-3	1.62	7.1	34.0	26.2	15.3	-	6.6
A_{21}	3-15	1.58	9.4	39.7	24.0	10.6	-	2.3
A_{22}	15-30	1.66	9.9	36.5	23.0	11.4	-	2.2

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 16 [1]

SOIL TYPE: Leon fine sand
CLASSIFICATION: Ground-Water Podzol
PARENT MATERIAL: Acid marine sands

AREA: Seminole County, Florida (SCS-55)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-9	Very dark gray (N 3/0) fine sand with considerable finely divided, black organic matter.	-	-	-	-
A_2	9-21	Light gray (N 7/0) fine sand very low in organic-matter content.	-	-	-	-
B_h	21-30	Black (10YR 2/1) fine sand; high organic-matter content; semi-cemented into an organic hardpan; interstitial spaces stopped up with fine organic material; few root or worm holes.	0.131	-	0.026	0.105
C	30-72+	Brown (7.5YR 4/2) fine sand growing lighter brown with depth; marbled appearance due to organic stains along old root channels; moderate numbers of vertical small root channels partially stopped with peaty material; interstitial pores somewhat clogged with fine organic matter; horizon is below normal water table and constantly saturated.	.110	-	.037	.073

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A_p	3-6	1.45	4.8	44.6	21.3	-	-	-
A_2	15-18	1.62	8.7	39.6	17.4	-	-	-
B_h	24-27	1.56	-	41.6	37.2	13.1	-	2.6
C	33-36	1.53	.6	43.1	37.3	11.0	-	3.7

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 17 1/

SOIL TYPE: Leon fine sand, concretionary substratum
CLASSIFICATION: Ground-Water Podzol
PARENT MATERIAL: Acid marine sands

AREA: Okeechobee County, Florida (ARS-7)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-3	Gray (10YR 3/1) fine sand containing moderate amount of organic matter; loose; strongly acid; clear boundary.	0.314	-	0.119	0.195
A_2	3-11	Light gray (10YR 7/1) fine sand; loose; highly leached layer; strongly acid; abrupt boundary.	.248	-	.061	.187
B_{2h}	11-16	Black (10YR 2/1) fine sand; stained black with organic matter accumulation; friable; strongly acid; gradual boundary.	.130	-	.077	.053
C	16-24+	Brown (10YR 5/3) fine sand streaked and splotched with lighter and darker brown; loose; numerous hard iron pebbles; concentration of pebbles increases with depth; strongly acid.	-	-	.024	-
D	24-30+	Hard sandy iron rock with small sand pockets; strongly acid.	-	-	.019	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_1	0-3	1.31	2.0	46.4	35.7	31.4	-	11.9
A2	3-12	1.46	4.6	44.3	31.8	24.8	-	6.1
B_{2h}	12-18	1.68	3.0	36.8	25.4	13.0	-	7.7
C	18-24	1.73	6.8	35.2	21.4	-	-	2.4
D	24-27	1.71	7.9	36.3	25.6	-	-	1.9

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 18 [1]

SOIL TYPE: Ona fine sand
CLASSIFICATION: Ground-Water Podzol
PARENT MATERIAL: Acid marine sands

AREA: Orange County, Florida (SCS-61)
RELIEF: Nearly level, slightly depressed area
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-9	Very dark gray (N 3/0) fine sand with considerable organic matter. This horizon has been frequently cultivated but had settled under several saturations since last disturbed.	-	-	-	-
B_h	9-15	Dark brown (7.5YR 3/2) fine sand; weakly cemented by organic matter into crisp semihardpan; moderately high organic matter content; interstices somewhat restricted by organic matter; numerous small root channels.	0.187	0.142	0.075	0.112
C	15-48+	Very pale brown (10YR 7/3) fine sand with low organic content; numerous small and medium peat-filled root holes. This horizon is normally below the water table.	.051	-	.012	.039

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
Ap	3-6	1.54	2.2	42.6	32.6	-	-	-
Bh	9-12	1.32	4.4	48.4	37.0	18.7	14.2	7.5
C	27-30	1.61	9.0	39.4	28.5	5.1	-	1.2

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 19[1]

SOIL TYPE: Pomello sand
CLASSIFICATION: Ground-Water Podzol
PARENT MATERIAL: Acid marine sands

AREA: Seminole County, Florida (SCS-58)
RELIEF: Nearly level low ridge
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-6	Light gray (N 7/0) fine sand with very low organic content. Sand particles fit loosely together and crumble readily into single grains; contains moderate number of twigs and roots of recently cleared native vegetation.	0.052	-	0.046	0.006
A2	6-42	White (N 8/0) fine sand; very loose incoherent consistence; few medium and small roots; open arrangement of sand particles, very unstable, and has tendency to collapse somewhat under saturation.	.034	-	.026	.008
Bh	42-50+	Porous, semihard organic "pan." This underlain by very loose, porous, light-brown-stained fine sand; not sampled.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.[2]	Vol.pct.	Vol.pct.[2]
Ap	0-3	1.42	18.6	45.1	10.5	5.2	-	4.6
A2	15-18	1.47	32.7	43.5	6.7	3.4	-	2.6
Bh	-	-	--	-	-	-	-	-

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 20 [1]

SOIL TYPE: St. Johns fine sand
CLASSIFICATION: Ground-Water Podzol
PARENT MATERIAL: Acid marine sand

AREA: Orange County, Florida (SCS-23)
RELIEF: Nearly level, slightly depressed, saucerlike area
DRAINAGE: Very poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-8	Black (N 2/0) fine sand with high organic content; contains numerous small roots and partly decayed peaty material.	0.130	0.114	0.086	0.044
A_2	8-12	Very dark grayish-brown (10YR 3/2) fine sand with moderately high content of brown fine organic matter; numerous small root channels running vertically and coated by iron oxide deposits. The brown color of this layer is not typical of the series.	-	.051	.033	.017
B_{21h}	12-24	Yellowish-brown (10YR 5/4) dense fine sand mottled slightly with brownish-yellow (10YR 6/6) and having a low organic content; occasional small and medium-sized root channels running vertically.	-	.054	.031	.014
B_{22h}	24-34	Dark reddish-brown (5YR 2/2) fine sand with high organic content; very hard and brittle. This horizon constitutes a typical organic hardpan. Occasional small root channels, but the permeability of this horizon appeared to be due principally to the small interstitial pores.	.117	-	.092	.025
C	34-42+	Very pale brown dense fine sand with slight organic stain. Water table at 34".	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_1	2-5	1.00	12.7	61.0	43.2	13.0	11.4	8.6
A_2	9-12	1.50	8.4	42.0	25.5	-	5.1	3.3
B_{21h}	15-18	1.69	6.2	37.0	24.6	-	5.4	3.1
B_{22h}	24-27	1.52	.7	41.9	36.1	11.7	-	9.2

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 21 1/

SOIL TYPE: Adamsville fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Marine sands influenced by calcic materials

AREA: Okeechobee County, Florida (ARS-3)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-4	Very dark gray (N 3/0) fine sand with moderate organic content; loose; strongly acid (pH 5.5); clear boundary with next layer.	0.377	-	0.180	0.197
C_1	4-36	Light gray (N 6/0 to 10YR 7/1) fine sand streaked and splotched with pale brown; loose; medium to slightly acid (pH 6 to 6.5); clear boundary with next layer.	.141	-	.051	.090
C_2	36-48+	Yellowish-brown (10YR 5/4) fine sand stained with organic matter; loose; slightly acid (pH 6.5).	.298	-	.075	.223

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_1	0-3	1.30	1.4	46.9	39.7	37.7	-	18.0
C_1	3-24	1.59	9.7	39.2	28.9	14.1	-	5.1
C_2	24-36	1.56	11.1	40.6	35.0	29.8	-	7.5

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 22 1/

SOIL TYPE: Adamsville fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Marine sands influenced by calcic materials

AREA: Okeechobee County, Florida (ARS-6)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-4	Dark gray (N 4/0) fine sand; strongly acid (pH 5); gradual boundary with next layer.	0.245	-	0.166	0.079
C_1	4-15	Light gray (10YR 6/1) fine sand streaked and splotched with darker gray and brownish-gray; slightly acid (pH 6); clear boundary with next layer.	.152	-	.051	.101
C_2	15-20	Brown (10YR 5/3) fine sand stained with organic material; loose; medium acid (pH 6); gradual boundary with next layer.	.095	-	.038	.057
C_3	20-36+	Light brownish-gray (10YR 6/2) fine sand streaked and splotched with darker brown; loose.	.105	-	.029	.076

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_1	0-3	1.33	8.1	46.1	34.6	24.5	-	16.6
C_1	3-15	1.48	7.2	43.6	32.0	15.2	-	5.1
C_2	15-21	1.56	8.8	40.4	28.0	9.5	-	3.8
C_3	21-36	1.72	6.1	34.3	25.2	10.5	-	2.9

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 23 [1]

SOIL TYPE: Bladen fine sandy loam
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Acid marine clays and sandy clays

AREA: Nassau County, Florida (SCS-113)
RELIEF: Nearly level
DRAINAGE: Poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-6	Very dark gray (N 3/0) fine sandy loam with considerable very fine sand and medium organic content; weak to moderate crumb structure; friable when moist; few large and small pores, moderate number of medium pores; numerous small roots and evidence of small earthworms.	0.224	-	0.077	0.147
A_2	6-15	Faintly mottled gray (10YR 6/1) fine sandy loam; weak crumb structure; very friable when moist; very few large pores but moderate number of medium and small pores; evidence of small earthworm activity; many small roots.	.230	-	.034	.195
B_{2g}	15-30	Mottled gray and brownish-yellow (10YR 5/1, 6/6) clay; strong coarse angular blocky structure; vertical axis slightly longer than horizontal with about 50% overlap of aggregates; plastic when wet; firm when moist; few interstitial pores; moderate number of small roots which appear to follow cleavage faces rather than penetrate aggregates.	-	-	.179	-
B_{3g}	30-36+	Texture, color, structure, and consistence similar to "B_{2g}" except for more pronounced mottling with gray (N 6/0) and dark red (10R 3/6) splotches.	-	-	.316	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
Ap	0-3	1.35	1.4	52.3	43.4	22.4	-	7.7
A_2	9-12	1.54	5.0	43.4	27.8	23.0	-	3.4
B_{2g}	17-20	1.54	9.6	46.0	38.8	-	-	17.9
B_{3g}	32-35	1.49	.4	48.1	42.8	-	-	31.6

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 24 1/

SOIL TYPE: Charlotte fine sand, shallow
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Marine sands influenced by calcic materials

AREA: De Soto County, Florida (SCS-65)
RELIEF: Level, slightly depressed slough
DRAINAGE: Poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A	0-12	Light gray (10YR 7/1) fine sand containing considerable very fine sand and specked with fine organic particles. Near the surface there are numerous small grass roots which do not penetrate more than about 3".	0.066	-	0.016	0.050
C	12-24	Yellow (10YR 8/6) dense fine sand with high content of very fine sand.	.032	-	.012	.020
D	24-42	Mottled yellowish-brown and yellow (10YR 5/6, 7/6) fine sandy clay with numerous lenses of fine sand and fine sandy loam; moderately compact. This horizon is locally quite variable in color, texture, and depth. Small domes of dense sandy clay material lie adjacent to sand pockets which penetrate deep into the horizon.	-	-	.014	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. 2/	Vol.pct.	Vol.pct. 2/
A	3-6	1.57	12.3	40.2	24.0	6.6	-	1.6
C	15-18	1.61	11.2	40.1	19.8	3.2	-	1.2
D	27-30	1.51	.5	42.4	27.4	-	-	1.4

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 25 [1]

SOIL TYPE: Coxville fine sandy loam
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Acid marine sandy clays and clays

AREA: Calhoun County, Florida (SCS-97)
RELIEF: Nearly level
DRAINAGE: Poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-6	Dark gray (N 4/0) fine sandy loam with moderately high organic-matter content; moderate crumb structure; moderately compact; contains numerous small grass roots and has a high population of small earthworms.	0.338	-	0.081	-
B_2	6-15	Mottled gray (N 6/0) very pale brown (10YR 7/3) and yellowish-brown (10YR 6/6) sandy clay; moderate medium angular blocky structure; very compact; very few visible pores; roots and earthworm penetration extended only about 1" into the horizon.	-	-	.103	-
C	15+	Strongly mottled red (10R 4/6), light gray (N 7/0), and very pale brown (10YR 7/4) fine sandy clay; strong medium angular blocky structure; comparatively few visible pores.	-	-	.151	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A_1	0-3	1.42	0.5	44.9	39.1	33.8	-	8.1
B_2	6-9	1.79	.03	30.5	27.9	-	-	10.3
C	18-21	1.58	.5	40.0	35.2	-	-	15.1

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 26 [1]

SOIL TYPE: Dunbar fine sandy loam, dark-colored surface
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Acid marine sands and sandy clays

AREA: Calhoun County, Florida (SCS-96)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A	0-8	Black (5Y 2/1) grading to dark olive gray (5Y 3/2) fine sandy loam with moderate organic-matter content; moderate crumb structure; contains numerous small grass roots but otherwise has few visible pores.	0.282	-	0.094	-
B_2	8-30	Yellow (2Y 7/6) faintly mottled fine sandy clay; weak angular blocky structure grading toward crumb structure; breaks with about the same ease in both horizontal and vertical planes; contains moderately numerous small pores but relatively few medium and large pores.	.260	-	.090	-
C	30-36+	Yellow (10YR 7/8) mottled with reddish-yellow and red fine sandy clay; moderate angular blocky structure; moderately compact; structural faces moderately rough; horizontal cleavage more pronounced than vertical; few small roots; numerous small pores and few medium and large pores.	.307	-	.117	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A	0-3	1.28	0.7	49.7	44.2	28.2	-	9.4
B_2	9-12	1.52	3.2	40.5	30.8	26.0	-	9.0
C	30-33	1.63	.2	39.1	33.7	30.7	-	11.7

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 27[1]

SOIL TYPE: Felda fine sand
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Marine sands over alkaline sandy clays

AREA: Indian River County, Florida (SCS-20)
RELIEF: Nearly level depressed area
DRAINAGE: Poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-5	Gray (10YR 5/1) fine sand; moderate organic-matter content; this horizon disturbed by bulldozer activity.	-	-	-	-
A_2	5-12	Gray (10YR 6/1) fine sand streaked with light gray and white fine sand; loose, single grain; moderately dense; contains moderate number of small pores; abrupt change to "B_1" horizon.	0.067	0.051	0.026	0.041
B_1	12-18	Mottled gray (10YR 5/1), light gray (10YR 7/1), and brownish-yellow (10YR 6/6) fine sandy loam; weak subangular blocky structure; sticky when wet, friable when moist; texture is locally quite variable with small areas of loamy fine sand and fine sandy clay.	.166	.136	.075	.061
B_2	18-36	Gray (N 5/0) fine sandy clay with splotches of brownish-yellow (10YR 6/6); structureless, massive; sticky and plastic when wet, firm when moist, hard when dry.	.207	.163	.096	.067
D	36-42	Light gray (N 6/0) with distinct bluish cast irregular mass of fine sandy clay, fine sandy loam and fine sand with some soft seashell. Overall permeability of the horizon is increased by presence of sandy areas. Pale bluish-gray fine sand with numerous soft marine shells below 48".	.176	.157	.089	.068

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.[2]	Vol.pct.[2]	Vol.pct.[2]
A_p	-	-	-	-	-	-	-	-
A_2	5-8	1.69	7.0	36.2	14.6	6.7	5.1	2.6
B_1	13-16	1.72	1.0	37.5	25.2	16.6	13.6	7.5
B_2	22-25	1.73	.5	36.5	30.5	20.7	16.3	9.6
D	39-42	1.71	1.4	36.3	29.4	17.6	15.7	8.9

1/ Locations of samplings are shown on figure 1.

2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 28 1/

SOIL TYPE: Fellowship loamy fine sand
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Phosphatic sands and clays

AREA: Alachua County, Florida (3CS-22)
RELIEF: Gently sloping hillside
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-6	Very dark gray (10YR 3/1) loamy fine sand; moderate organic-matter content; weak, fine, crumb structure; nonplastic and nonsticky when wet, friable when moist; numerous small and medium pores; little compaction; comparatively low density.	0.126	0.063	0.035	0.091
A_{12}	6-10	Weakly mottled brown (10YR 4/3) and dark grayish-brown loamy fine sand; less organic matter than the "Ap" horizon; weak fine crumb structure; frequent medium and small pores.	-	-	-	-
B_2	10-24	Mottled grayish-brown and gray (10YR 5/2, 5/1) clay; strong medium angular blocky structure; very sticky and very plastic when wet; high shrinkage on drying; very few pores.	-	-	-	-
B_3	24-30	Light gray (10YR 7/1) clay with structure and consistence similar to "B_2" horizon; main cleavage faces roughly in a horizontal position; firm when moist, and hard when dry; numerous small fragments of limestone are present; few pores in evidence.		-	-	-
D	30-48+	Below 30" soft marl becomes more and more dominant until at about 60" there is little plastic clay. Limestone imbedded in marl underlies the area.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. 2/	Vol.pct. 2/	Vol.pct. 2/
Ap	1-4	1.26	18.3	53.0	24.2	12.6	6.3	3.5
A_{12}	-	-	-	-	-	-	-	-
B_2	10-13	1.24	.2	51.6	45.7	-	-	-
B_3	25-28	1.24	.02	53.2	48.8	-	-	-
D	-	-	-	-	-	-	-	-

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 29 [1]

SOIL TYPE: Keri fine sand
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Stratified marine sands and marl

AREA: Lee County, Florida (SCS-93)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-6	Dark gray (N 4/0) "salt and pepper" fine sand matted with numerous fine roots; loose single grain; medium organic content.	0.068	-	0.058	0.010
A_2	6-15	Very pale brown (10YR 8/4) fine sand mottled with white and brownish-yellow; slightly dense, single grain; moderately few small and medium roots; root channels partly filled with peaty material.	.032	-	.020	.012
B_2	15-18	White (N 8/0) soft, fine sandy marl with numerous peat-filled small and medium root holes. Fractures horizontally more easily than vertically.	-	-	-	-
C-D	18+	Marl is quite variable in thickness. Below it lies several inches of highly calcareous fine sandy loam which rests on shelly limestone; not sampled.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A_1	0-3	1.33	20.6	46.3	29.4	6.8	-	5.8
A_2	6-9	1.56	17.0	41.0	15.2	3.2	-	2.0
B_2	15-18	1.29	1.5	47.4	40.7	-	-	-

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 30 [1]

SOIL TYPE: Plummer fine sand
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Acid marine sands

AREA: Putnam County, Florida (SCS-28)
RELIEF: Nearly level
DRAINAGE: Poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-9	Dark gray (N 4/0) "salt and pepper" fine sand; loose; numerous root channels.	0.076	0.055	0.051	0.025
C_1	9-24	Light gray (N 7/0) fine sand marbled with small areas of slightly darker gray; numerous sand-filled small animal burrows.	.058	.040	.031	.027
C_2	24-36+	Light brownish-gray (10YR 6/2) dense fine sand with a low organic-matter content.	.080	.049	.018	.062

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_1	0-3	1.38	8.8	46.0	24.5	7.6	5.5	5.1
C_1	15-18	1.50	16.4	42.3	16.4	5.8	4.0	3.1
C_2	33-36	1.64	5.5	38.6	16.4	8.0	4.9	1.8

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 31 1/

SOIL TYPE: Plummer fine sand
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Acid marine sands

AREA: Okeechobee County, Florida (ARS-1)
RELIEF: Nearly level
DRAINAGE: Poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-5	Very dark gray (N 3/0) fine sand; loose; strongly acid (pH 5); clear boundary with next layer.	0.260	-	0.064	0.196
C_1	6-32	Light gray (10YR 7/2 to N 7/0) fine sand; loose; strongly acid (pH 5); clear boundary with next layer.	.131	-	.018	.113
C_2	32-34	Dark brown (10YR 3/3) fine sand stained with organic matter; loose; strongly acid (pH 5); gradual boundary with next layer; not sampled.	-	-	-	-
C_3	34-48+	Mottled yellowish-brown (10YR 5/6) and very pale brown (10YR 7/3) fine sand; loose; strongly acid (pH 5); not sampled.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_1	0-6	1.40	4.6	45.0	35.6	26.0	-	6.4
C_1	6-21	1.60	6.3	38.4	28.0	13.1	-	1.8

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 32 [1]

SOIL TYPE: Ruskin fine sand
CLASSIFICATION: Low-Humic Gley
PARENT MATERIAL: Marine sands over calcareous material and shelly marl

AREA: Hillsborough County, Florida (SCS-31)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-10	Gray (N 5/0) fine sand with "salt and pepper" appearance due to moderate content of organic material.	0.075	0.057	0.048	0.027
A_2	10-16	Light gray (N 7/0) faintly mottled very dense fine sand with low organic content; contains numerous medium-sized root channels, remnants of old palmetto roots, mostly in horizontal position.	.059	.047	.032	.027
A_3	16-21	Pale brown (10YR 6/3) faintly mottled dense fine sand with low organic content; contains considerable very fine sand and some clay; numerous medium root channels running vertically.	.040	.032	.021	.019
B	21-33	Brownish-yellow (10YR 6/6), faintly mottled fine sandy clay; massive; slightly sticky and nonplastic when wet, friable when moist; numerous small root channels.	.162	.145	.084	.078
D	33-48+	Shelly marl which is fairly hard and quite porous; not sampled.				

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_p	5-8	1.51	5.6	43.1	24.9	7.5	5.7	4.8
A_2	11-14	1.67	5.0	37.7	29.0	5.9	4.7	3.2
A_3	18-21	1.61	14.8	40.0	24.3	4.0	3.2	2.1
B	24-27	1.59	4.3	41.0	36.8	16.2	14.5	8.4

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 33 1/

SOIL TYPE: Bayboro loamy fine sand
CLASSIFICATION: Humic Gley
PARENT MATERIAL: Acid marine clays

AREA: Alachua County, Florida (SCS-27)
RELIEF: Nearly level
DRAINAGE: Very poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-9	Black (N 2/0) loamy fine sand; very high content of organic matter; moderate crumb structure; numerous small roots and root channels; high percentage of organic matter is colloidal and therefore tends to restrict permeability.	-	-	-	-
B_2	9-24	Grayish-brown (10YR 5/2) fine sandy clay with fine rust markings along numerous small and medium pores; medium angular blocky structure; plastic when wet, friable when moist.	-	-	-	-
B_3	24-36+	Light brownish-gray (10YR 6/2) fine sandy clay marbled with fine rust markings; moderate, angular blocky structure; slightly plastic when wet, friable when moist; numerous small and medium pores.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_1	3-6	1.35	2.5	46.1	30.8	-	-	-
B_2	15-18	1.31	5.4	52.1	39.6	-	-	-
B_3	24-27	1.34	5.1	47.6	34.4	-	-	-

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 34 [1]

SOIL TYPE: Bayboro mucky fine sand, thick surface
CLASSIFICATION: Humic Gley
PARENT MATERIAL: Acid marine sands and sandy clays

AREA: Alachua County, Florida (SCS-26)
RELIEF: Nearly level slough
DRAINAGE: Very poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_0	0-2	Raw organic material; not sampled.	-	-	-	-
A_1	2-10	Black, mucky fine sand; very high content of fibrous and colloidal organic material; surface more peaty than lower depth; moderately compact; few root channels.	0.47	-	0.14	0.33
A_2	10-14	Light-gray (10YR 7/2) dense fine sand; very low content of colloidal organic material and fine inorganic separates.	.03	-	.02	.01
B_2	24-42	Light-gray (10YR 7/1) fine sandy clay streaked with brown along root channels; weak, angular blocky structure; sticky when wet, firm when moist; moderate number of small and medium root channels.	-	-	.15	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A_0	-	-	-	-	-	-	-	-
A_1	6-9	1.02	4.0	58.5	49.5	47.4	-	14.3
A_2	12-15	1.68	11.6	34.5	17.5	2.8	-	2.1
B_2	27-30	1.79	2.0	31.8	27.6	-	-	14.6

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 35 1/

SOIL TYPE: Manatee fine sandy loam
CLASSIFICATION: Humic Gley
PARENT MATERIAL: Thin beds of marine sands over marl

AREA: Indian River County, Florida (SCS-16)
RELIEF: Nearly level
DRAINAGE: Very poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-9	Black (5Y 2/1) fine sandy loam; high organic-matter content; weak, angular blocky structure with horizontal axes predominating; friable when moist, sticky and slightly plastic when wet; moderately porous with numerous shell fragments and marl.	-	-	-	-
B_{2g}	9-14	Very dark gray (5Y 3/1) dense fine sandy clay loam; high organic-matter content; moderate medium angular blocky structure; longest cleavage lines are horizontal; moderately plastic and sticky when wet, friable when moist; penetrated with numerous small vertical root channels.	-	-	-	-
C_1	14-28	Light gray (5Y 7/1) dense fine sandy marl; moderate, medium angular blocky structure; sticky when wet, firm when moist; numerous small vertical root channels. Permeability more or less proportional to number of root channels.	-	-	-	-
C_2	28-48+	Finely mottled, light-gray (2.5Y 7/2) and light olive-brown (2.5Y 5/6) dense fine sandy marl; moderate fine blocky structure; frequent small root channels running vertically; slightly more friable and porous than the "C_1" horizon.	-	-	-	-
D	48-60+	Coral and seashells imbedded in marl.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
Ap	2-5	1.39	2.3	46.9	38.2			
B_{2g}	10-13	1.76	.4	33.7	29.0			
C_1	14-17	1.83	.8	31.2	27.3			
C_2	30-33	1.88	1.4	29.0	25.1			

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 36 1/

SOIL TYPE: Rutlege fine sand
CLASSIFICATION: Humic Gley
PARENT MATERIAL: Acid marine sands

AREA: Putnam County, Florida (SCS-29)
RELIEF: Nearly level low wet prairie
DRAINAGE: Very poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-12	Very dark gray (N 3/0) "salt and pepper" fine sand with high organic-matter content; considerable fibrous peat; frequent root channels.	-	-	-	-
C_1	12-24	Gray (N 5/0) fine sand with high organic-matter content; relatively few root channels.	-	-	-	-
C_2	24-36+	Light gray (10YR 7/1) fine sand with high content of very fine sand and some colloidal organic material; few root channels.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_1	1-4	1.20	7.8	55.7	43.8			
C_1	15-18	1.08	5.9	84.5	68.0			
C_2	33-36	1.48	1.0	46.1	34.3			

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 37 1/

SOIL TYPE: Scranton fine sand, shallow
CLASSIFICATION: Humic Gley
PARENT MATERIAL: Acid marine sands
AREA: Alachua County, Florida (SCS-1)
RELIEF: Nearly level
DRAINAGE: Somewhat poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-9	Very dark gray (N 4/0) fine sand with moderately high organic-matter content; weak crumb structure with loose consistence; contains numerous small grass and shrub roots.	-	-	-	-
C_1	9-18	Gray (N 6/0) fine sand with some organic matter; structureless, single grain, with loose consistence; occasional small roots and 9" to 18" small channels of decayed roots.	-	-	-	-
C_2	18-30	Light gray (5Y 7/1) fine sand faintly mottled with reddish-brown splotches; softly cemented in these splotches; structureless, single grain; more dense than "Ap" horizon.	-	-	-	-
D	30-48+	Reddish-brown (2.5YR 5/4) mottled with light gray (5Y 7/1) sandy clay; massive material; slightly plastic when wet and compact when moist.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
Ap	1-4	1.55	8.9	38.0	23.2			
C_1	8-11	1.50	19.3	42.8	17.1			
C_2	24-27	1.85	1.0	29.8	19.8			
D	36-39	1.81	.4	31.6	28.7			

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 38 1/

SOIL TYPE: Arredondo fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Phosphatic marine sands and loamy sands

AREA: Alachua County, Florida (SCS-2)
RELIEF: Gently sloping hillside
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-10	Dark gray (10YR 4/1) fine sand with medium organic matter content; weak, fine crumb structure; non-plastic when wet, very friable when moist.	-	-	-	-
C_1	10-25	Brown (10YR 4/3) fine sand; structureless, single grain; loose when moist. This zone has undergone extensive disturbance by rodents. Old burrows filled in with darker material from the "A_1" horizon give a mottled appearance.	-	-	-	-
C_2	25-30	Same as "C_1" except with only occasional rodent burrows.	-	-	-	-
D	30-72+	Light yellowish-brown (10YR 6/4) loamy fine sand; weak, fine crumb structure; loose when moist; not disturbed by rodents. This zone extends well over 72".	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
A_p	2-5	1.59	10.8	43.0	16.3			
C_1	10-13	1.50	26.1	45.8	13.8			
C_2	25-28	1.53	28.8	43.6	11.8			
D	39-42	1.61	24.0	41.2	11.1			

1/ Locations of samplings are shown on figure 1.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 39 [1]

SOIL TYPE: Blanton fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Marine sands

AREA: Hillsborough County, Florida (SCS-34)
RELIEF: Nearly level low ridgetop
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-6	Dark gray (N 4/0) slightly dense fine sand with moderate organic-matter content; contains considerable very fine sand.	0.073	0.051	0.029	0.044
C_1	6-26	Light gray (5Y 7/1) faintly mottled fine sand with low organic-matter content; loose consistence.	.054	.035	.015	.039
C_2	26-72+	Light gray (5Y 7/1) faintly mottled very loose fine sand with little organic matter. Easily compacted or made more dense, although noncoherent.	.047	.029	.012	.035

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_p	2-5	1.55	15.4	41.6	18.8	7.3	5.1	2.8
C_1	9-12	1.51	25.8	42.7	12.4	5.4	3.5	1.5
C_2	27-30	1.52	29.8	44.2	12.9	5.0	2.9	1.2

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 40 [1]

SOIL TYPE: Chiefland fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Marine sands underlain by limestone
AREA: Alachua County, Florida (SCS-48)
RELIEF: Gently undulating
DRAINAGE: Somewhat excessively drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-9	Dark gray (10YR 4/1) fine sand with high content of very fine sand and low organic-matter content; loose consistence; numerous small grass roots and occasional small root and worm holes.	0.074	-	0.022	0.052
C_1	9-66	Pale yellow (2.5Y 7/4) fine sand with high content of very fine sand, similar in most respects to the "Ap" horizon, but is loose and contains little or no organic matter.	.045	-	.011	.034
C_2	66-104+	White (N 8/0) very fine sand; loose consistence.	.039	-	.014	.025
D	104+	At varying depths the very fine sand of the C_2 horizon rests on hard limestone.				

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
Ap	1-4	1.44	16.6	43.7	14.7	7.4	-	2.2
C_1	30-33	1.47	22.4	43.7	11.2	4.5	-	1.1
C_2	72-75	1.53	15.2	40.0	19.3	3.9	-	1.4

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 41 [1]

SOIL TYPE: Eustis sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Marine sands

AREA: Lake County, Florida (SCS-57)
RELIEF: Gently sloping hillside
DRAINAGE: Somewhat excessively drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-9	Brown (10YR 5/3) sand with moderately low organic content; loose consistence.	0.054	-	0.023	0.031
C_{11}	9-24	Reddish-yellow (7.5YR 6/6) sand with little or no organic matter; loose consistence.	.040	0.019	.018	.022
C_{12}	24-72+	Reddish-yellow (7.5YR 6/8) sand; very loose. Similar in most respects to the "C_{11}" horizon except it appears more porous, looser, and slightly brighter in color.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_p	3-6	1.70	23.5	34.7	12.9	5.4	-	2.3
C_{11}	18-21	1.60	42.2	37.4	9.5	4.0	1.9	1.8
C_{12}	33-36	1.53	57.8	39.9	7.7	-	-	-

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 42 1/

SOIL TYPE: Fort Meade fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Marine sands and pebbly phosphatic materials

AREA: Alachua County, Florida (SCS-6)
RELIEF: Gently sloping hillside
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-7	Very dark gray (10YR 3/1) fine sand with moderately high content of organic material; weak, fine crumb structure; loose; nonuniform mixture of sands within plow depth.	0.182	0.134	0.063	0.119
A_{12}	7-12	Dark gray (10YR 4/1) fine sand; loose, single grain; similar to the "A_1" horizon but slightly more compact; contains numerous small pores; undisturbed by plow, but has occasional rodent burrows filled with material from layer above.	.185	.142	.081	.104
C_1	12-24	Grayish-brown (2.5Y 5/2) fine sand; loose, single grain; contains small amount of organic material. The sand grains fit loosely together and form a very porous mass. Occasional rodent burrows filled with material from layer above. Moist when sampled.	.153	.121	.070	.083
C_2	24-48+	Light yellowish-brown (10YR 6/4) loamy fine sand; weak, fine crumb structure; loose, very porous; this condition extends to a considerable depth, well over 48".	.125	.102	.069	.056

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. 2/	Vol.pct. 2/	Vol.pct. 2/
A_p	1-4	1.20	28.0	53.8	20.2	18.2	13.4	6.3
A_{12}	7-10	1.33	20.1	48.5	20.0	18.5	14.2	8.1
C_1	20-23	1.26	35.6	50.6	17.8	15.3	12.1	7.0
C_2	37-40	1.38	27.9	48.4	16.7	12.5	10.2	6.9

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 43 [1]

SOIL TYPE: Gainesville fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Phosphatic sands and loamy sands

AREA: Hillsborough County, Florida (SCS-32)
RELIEF: Gently sloping hillside
DRAINAGE: Well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_p	0-10	Dark brown (7.5YR 3/2) fine sand with moderately low organic content; loose. This horizon has been frequently disturbed by plowing and is not in natural condition.	0.126	0.099	0.054	0.072
C_1	10-20	Dark yellowish-brown (10YR 4/4) fine sand with weak fine crumb structure; loose; quite porous with moderately large interstitial pores.	.103	.080	.045	.058
C_2	20-30	Strong brown (7.5YR 5/6) fine sand; loose consistence. The soil particles fit loosely together and give a very porous, fluffy consistence to the soil mass.	.091	.070	.045	.046
C_3	30-42+	Reddish-yellow (5YR 6/8) fine sand; loose, very porous, and easily compactible soil mass.	.083	.064	.046	.037

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
A_p	2-5	1.52	9.5	39.7	21.9	12.6	9.9	5.4
C_1	12-15	1.41	26.8	46.8	16.6	10.3	8.0	4.5
C_2	24-27	1.40	32.0	47.3	13.8	9.1	7.0	4.5
C_3	33-36	1.48	30.3	45.5	13.3	8.3	6.4	4.6

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 44 1/

SOIL TYPE: Lakeland sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Acid marine sands

AREA: Lake County, Florida (SCS-56)
RELIEF: Nearly level hilltop
DRAINAGE: Somewhat excessively drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-6	Pale brown (10YR 6/3) sand containing fairly high content of coarse and fine sand. This horizon had been disturbed by plowing but had settled into a fairly uniformly porous body since last plowing.	0.041	0.036	0.017	0.024
C_{11}	6-24	Brownish-yellow (10YR 6/8) sand with considerable coarse and fine sand and little or no organic matter; loose consistence.	.049	-	.027	.022
C_{12}	24-72+	Yellow (10YR 7/8) sand with considerable coarse sand; very loose consistence. Similar in appearance to the "C_{11}" horizon except slightly looser in consistence and brighter in color.	-	-	-	-

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. 2/	Vol.pct. 2/	Vol.pct. 2/
Ap	3-6	1.52	40.7	42.0	7.0	4.1	3.6	1.7
C_{11}	18-21	1.62	40.8	38.4	6.3	4.9	-	2.7
C_{12}	33-36	1.50	60.1	41.1	5.7	-	-	-

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 45 [1]

SOIL TYPE: Lakewood fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Deep beds of acid marine sands

AREA: Hillsborough County, Florida (SCS-43)
RELIEF: Rolling sand hills
DRAINAGE: Excessively drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-15	White (N 9/0) fine sand bordering medium sand and containing little very fine sand; very loose; low organic matter content. Individual sand particles fit together very loosely to form a framework which collapses about 1/12 natural volume when saturated.	0.040	-	0.026	0.014
B	15-72+	Pale yellow (2.5Y 7/4) fine sand with more very fine sand than found in the "Ap" horizon; loose consistence. This sand had slightly more "body" and did not collapse when saturated as did the "Ap" horizon.	.060	-	.028	.032

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
Ap	6-9	1.72	35.2	37.7	5.3	4.0	-	2.6
B	24-27	1.49	35.3	41.8	9.7	6.0	-	2.8

1/ Locations of samplings are shown on figure 1.
2/ Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 46 [1]

SOIL TYPE: Orlando fine sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Acid marine sands

AREA: Orange County, Florida (SCS-15)
RELIEF: Nearly level
DRAINAGE: Moderately well drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
Ap	0-9	Very dark gray (N 3/0) very fine sand with moderately high organic content. Compaction due to cultivation, and relatively high organic content gives a friable rather than a loose consistence to the soil mass.	0.133	0.075	0.052	0.081
A_{12}	9-21	Gray (N 5/0) fine sand with moderate organic content; loose, porous, single grain; high concentration of small citrus roots.	.076	-	.015	.061
C_1	21-48	Light gray (N 7/0) fine sand with low organic content; single grain; loose. This horizon grows lighter in color with depth and is almost white at the water table at 40".	.060	.028	.011	.049
C_2	48-60+	Dense very fine sand with a concentration of brown organic colloidal material which presents a semipan development not typical of this series but found extensively in nearby associated soil.	.122	.078	.018	.104

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct. [2]	Vol.pct. [2]
Ap	2-5	1.41	4.2	47.4	36.4	13.3	7.5	5.2
A_{12}	13-16	1.35	14.9	47.9	24.3	7.6	-	1.5
C_1	26-29	1.52	12.5	42.4	23.5	6.0	2.8	1.1
C_2	48-51	1.62	4.4	38.3	25.3	12.2	7.8	1.8

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 47 [1]

SOIL TYPE: St. Lucie sand
CLASSIFICATION: Regosol
PARENT MATERIAL: Deep beds of acid marine sands

AREA: Lake County, Florida (SCS-59)
RELIEF: Gently sloping low ridges
DRAINAGE: Excessively drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
A_1	0-18	Light gray (N 7/0) sand; very loose; gray cast due to small amount of surface organic matter.	0.039	-	0.022	0.017
C	18-72+	White (N 8/0) sand; very loose; similar in most respects to the "A_1" horizon except it contains no organic matter and is slightly more porous.	.031	-	.021	.010

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct. [2]	Vol.pct.	Vol.pct. [2]
A_1	0-3	1.52	54.5	41.8	6.6	3.9	-	2.2
C	33-36	1.46	68.1	39.3	5.0	3.1	-	2.1

[1] Locations of samplings are shown on figure 1.
[2] Data obtained from disturbed samples that had been stored for a period of time.

SOIL PROFILE AND MOISTURE CHARACTERISTICS

Sample 48 1/

SOIL TYPE: Everglades peaty muck
CLASSIFICATION: Organic soil
PARENT MATERIAL: Sawgrass

AREA: Palm Beach County, Florida (ARS-8)
RELIEF: Level
DRAINAGE: Very poorly drained

Horizon	Depth (In.)	Horizon description	Water content of respective horizons at indicated moisture tensions			
			0.1 atm.	0.5 atm.	15 atm.	Available
			Inch of water per inch of soil			
--	0-3	Dark brown to nearly black in color. Mineral content 13% to 18% dry weight.	0.48	-	0.30	0.18
--	3-6		.52	-	.32	.20
--	6-9		.58	-	.34	.24
--	9-12		.66	-	.28	.38
--	20-23		.70	-	.21	.49
--	32-35		.70	-	.18	.52

Soil Physical and Moisture Retention Data

Horizon	Sample depth	Bulk density	Hydraulic conductiv.	Total pores	Percent water at respective tensions			
					60 cm.	0.1 atm.	0.5 atm.	15 atm.
	Inches	Gm./cc.	In./hr.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.	Vol.pct.
--	0-3	0.356	12.9	79.7	51.5	48.0	-	29.7
--	3-6	.361	13.2	84.4	55.5	52.5	-	32.2
--	6-9	.337	14.9	85.8	61.5	58.2	-	33.8
--	9-12	.243	9.3	90.7	70.6	66.1	-	27.9
--	20-23	.134	13.3	96.0	76.2	70.1	-	21.4
--	32-35	.148	5.3	95.8	76.3	69.5	-	18.0

1/ Locations of samplings are shown on figure 1.